

ABSTRACT OF THE DISCLOSURE

Elastomeric compositions are produced by novel continuous flow methods and apparatus in which fluid streams of particulate filler and elastomer latex are fed to the mixing zone of a coagulum reactor to form a mixture flowing continuously from the mixing zone through a coagulum zone to a discharge end of the reactor. The particulate filler fluid is fed under high pressure to the mixing zone, such as to form a jet stream to entrain elastomer latex fluid sufficiently energetically to substantially completely coagulate the elastomer with the particulate filler prior to the discharge end. Semi-confined flow of the mixture in the coagulum zone is achieved preferably with progressively increasing cross-sectional dimension of the coagulum zone from the mixing zone to the discharge end.

Highly efficient and effective elastomer coagulation can be achieved without the need for a coagulation step involving exposure to acid or salt solution or the like. In addition to elastomeric compositions comparable to those achievable using traditional acid or salt coagulation techniques, novel elastomeric compositions can be prepared employing previously unworkable fillers, such as carbon black of exceptionally high surface area and low structure, etc., and/or having heretofore unachievable performance properties, filler dispersion levels, elastomer molecular weight distribution or a combination of any of these.